

## DESCRIPTION OF A NEW SPECIES OF HEMITRIPTERUS FROM ALASKA.

BY W. N. LOCKINGTON.

*Hemitripterus cavifrons*, nov. sp.D. iv-xiv, 1-12. A. 14. P. 20. V.  $\frac{1}{3}$ . C. 3-12-3. L. lat. 44.

Head very large and depressed; abdomen protuberant, so that the depth equals the width; snout to tip of ascending process of pre-maxillary rising at an angle of about  $45^{\circ}$ ; thence to occiput, along the median line of the fish, deeply concave; from occiput to caudal peduncle regularly arched, the curve reaching its highest point at about the tenth dorsal spine. Outline of anal base corresponding to that part of the dorsal directly above it.

Depth,  $3\frac{1}{2}$ ; greatest width,  $3\frac{1}{2}$ ; length of head,  $3\frac{1}{2}$ ; length of pectoral rather more than 4 times in the total length, caudal included.

Axial length of snout,  $3\frac{3}{5}$ ; longitudinal diameter of orbit,  $6\frac{2}{7}$ ; interocular width,  $2\frac{1}{7}$  times in length of head; least depth of caudal peduncle rather less than 5 times in greatest depth.

Anterior nostril on a level with the centre of the pupil, and prolonged into a conspicuous tube; posterior nostril somewhat tubular.

Orbits elevated considerably above the general surface of the forehead, so that the concavity of the inter-ocular area is equal to about  $\frac{3}{4}$  of the transverse diameter of the eye; eyes lateral, somewhat elliptical.

Mouth very large, very slightly oblique; its width from tip to tip of the opposite maxillaries,  $1\frac{1}{5}$  in the length of the head, and exceeding that of the upper jaw by more than one-third.

Pre-maxillaries not forming the whole of the margin of the upper jaw, the maxillaries entering into it posteriorly.

Posterior extremity of maxillary considerably behind the orbit, its upper margin not concealed by the pre-orbital in the closed mouth.

Lower jaw slightly projecting beyond the upper.

Several rows of sharp, recurved, cardiform teeth, forming a broad band, in both jaws, also on the vomer, palatines and pharyngeal bones. The teeth on the vomer and palatines slightly longer than those on the jaws.

No gill-rakers ; pharyngeal bones large.

Supra-ocular and post-ocular ridges prominent, the former curved inwards posteriorly, parallel to the post-ocular ; between the two, at the posterior upper angle of the eye, are two small spines or short ridges.

Occipital ridges with three tubercles, the anterior near the post-ocular ridge, the two posterior near together and elongated transversely ; a low ridge between the first and second.

Temporal ridge with three tubercles, the first immediately exterior to the first of the occipital series, the second a longitudinal ridge ; the third rounded, close to the second.

A long low crest across the operculum ; just above and anterior to this a shorter ridge connecting it with the temporal series ; a tubercle on the supra-scapula ; no spines upon the head, except two upon the posterior border of the pre-operculum.

All the tubercles of the head and the spines of the pre-operculum, covered by skin.

Maxillary with a fimbriated skinny flap near its posterior extremity ; lower margin of mandible set along its whole length with skinny flaps, of which three pairs are especially long and fimbriated on both edges, while the posterior flap is very broad.

Lips well developed ; lower lip pendulous at sides, and to a rather less extent in front, and bearing a fimbriated flap on each side.

Two pairs of similar flaps on the snout, and two over each eye.

Gill-membranes continuous below the throat.

Branchiostegals, 6.

Origin of first dorsal slightly anterior to the lower pectoral axil ; first two spines longest, about  $2\frac{1}{4}$  in the length of the head, fourth much shorter than the third, and a little shorter than the fifth ; sixth, seventh and eighth much longer than fourth, the remaining spines diminishing to the eighteenth, which is the shortest.

A tag at the end of each spine, the membrane between the two parts of the first dorsal notched considerably.

A spine at the commencement of the second dorsal, the base of which is contained more than  $2\frac{1}{2}$  times in that of the first, the rays increasing in length to the fifth, which is about  $\frac{1}{2}$  longer than the longest spine of the first dorsal ; upper margin of second dorsal, convex.

Anal longer than soft dorsal, arising opposite the last spine of the first dorsal, and terminating somewhat posterior to the second. Ninth to twelfth rays slightly the longest.

Pectorals very broad and rounded, their base oblique, the tip of the longest (sixth) ray reaching to about the sixteenth dorsal ray; rays simple, the longest a little less than one-fourth the total length of the fish.

Ventrals small, narrow, the longest (middle) ray rather more than half the length of the longest pectoral ray, but not reaching to the vent.

Caudal truncate on hinder margin, rather narrow, rays simple.

Vent midway between insertion of ventrals and origin of anal.

Lateral line with a series of skinny fimbriated flaps, similar to those upon the head.

Body and head scaleless, but the former covered all over with osseous papillæ; largest above the lateral line, smallest upon the protuberant portion of the abdomen.

Color, in alcohol, blotches of dark purplish-brown on a lighter ground; the blotches on the fins conspicuous, and running into transverse bars on the pectorals. Abdomen, light dirty-brown.

A single specimen of this interesting species was obtained by Mr. W. J. Fisher, at St. Paul's, Kodiak. It is in the museum of the California Academy of Sciences.

*Hemitripterus cavifrons* is the western representative of *H. acadianus* of the Atlantic, and differs from that species in the following characteristics, among others:—

The great depression of the inter-ocular area, whence the specific name; the greater number of dorsal spines; the shorter pectorals; the lesser depth of the posterior anal rays; the absence of hook-like papillæ along the lateral line, and the presence in their place of fleshy slips; and the smaller size of the bony papillæ along the dorsal region.

#### DIMENSIONS.

Total length,	. . . . .	15.75
Greatest depth,	. . . . .	4.50
Least depth of caudal peduncle,	. . . . .	.92
Length of head,	. . . . .	4.50
Width “	. . . . .	4.50
“ of mouth, from tip to tip of maxillaries,	. . . . .	3.75
Length of upper jaw along its curve,	. . . . .	2.75

Axial length of snout, . . . . .	1.25
Longitudinal diameter of eye, . . . . .	.70
Interocular width, . . . . .	1.70
Width of pectoral base, . . . . .	2.75
Length of longest (sixth) pectoral ray, . . . . .	3.88
Tip of snout to origin of dorsal, axial, . . . . .	2.75
“ “ “ “ “ along top of head, . . . . .	3.25
Length of base of spinous dorsal, . . . . .	6.50
Height of first spine, . . . . .	1.75
“ second spine, . . . . .	1.70
“ fourth spine, . . . . .	.90
“ fifth spine, . . . . .	.98
“ sixth spine, . . . . .	1.00
“ eighth spine, . . . . .	1.20
“ eighteenth spine, . . . . .	.88
“ spine of second dorsal, . . . . .	1.00
“ longest (fifth) ray of second dorsal, . . . . .	2.00
Length of base of second dorsal, . . . . .	2.50
Tip of lower jaw to ventrals, along abdomen, . . . . .	3.75
“ “ “ origin of anal, along abdomen, . . . . .	8.80
“ “ “ vent, . . . . .	6.32
Length of ventrals, . . . . .	2.00
“ base of anal, . . . . .	3.44
“ longest anal rays (9-12) . . . . .	2.10